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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/516,888	12/03/2004	Paul Alexander De Vries	8674.023.US0000	1674
77213	7590	09/03/2008		
Novak Druce + Quigg, LLP 1300 Eye Street, NW, Suite 1000 Suite 1000, West Tower Washington, DC 20005			EXAMINER MCGUTHRY BANKS, TIMA MICHELE	
			ART UNIT	PAPER NUMBER
			1793	
			MAIL DATE	DELIVERY MODE
			09/03/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/516,888	Applicant(s) DE VRIES ET AL.	
	Examiner TIMA M. MCGUTHRY-BANKS	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 July 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/14/08</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Allowable Subject Matter

The indicated allowability of claims 1-19 are is withdrawn in view of the newly discovered reference(s) to GB 885,503. Rejections based on the newly cited reference(s) follow.

Status of Claims

Claims 1-8 are currently amended, Claims 9-15 are as previously presented, and Claims 16-19 are new as of the amendment filed 11 October 2007.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114.

Applicant's submission filed on 14 July 2008 has been entered.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

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Claims 13 and 14 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. The compartments are critical or essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). The compartments are described as being in the chamber, not in the layer of the metal.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: the formation or existence of crystals has no preceding step.

Claim 13 recites the limitation "the compartments in the layer of metal" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 14 recites the limitation "the compartments in the layer of metal" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Claim 15 recites the limitation "the surface of the layer of metal" in line 3. There is insufficient antecedent basis for this limitation in the claim.

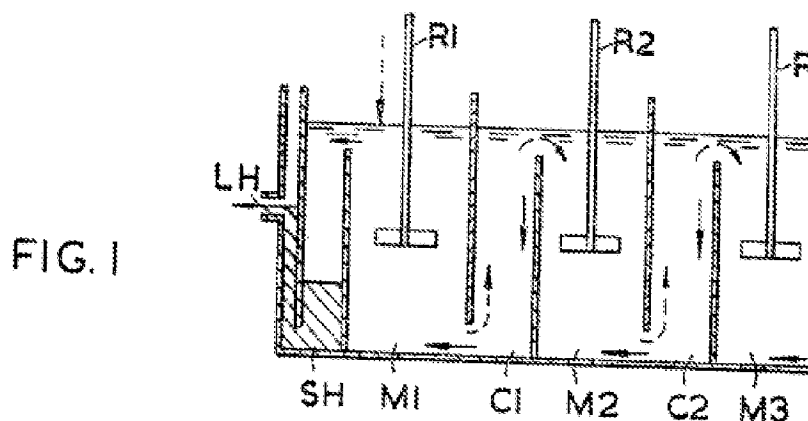
Claim 19 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: the formation or existence of crystals has no preceding step.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 3, 4, 6-10, 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over GB 885,503.

GB '503 teaches contacting two components of different densities that may be a liquid with a particulate solid as shown in FIG. 1:



Regarding the limitation that the method is for fractional crystallization, GB '503 does not specifically teach that limitation. However, if the body of a claim fully and intrinsically sets forth all of the limitations of the claimed invention, and the preamble merely state the intended use of the invention, rather than any distinct definition of any of the claimed invention's limitations, then the preamble is not considered a limitation and is no significance to claim construction. See MPEP § 2111.02. Regarding introducing the at least partially solidified molten metal, GB '503 teaches using liquids and not specifically molten metal. It would have been obvious to one of ordinary skill in the art at the time the invention was made that the

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method GB '503 is capable of using molten metal as the treatment liquid, since GB '503 does not limit the apparatus to a particular liquid type. Regarding the crystals, crystals can be considered particulates and thus taught by GB '503.

Regarding Claims 3 and 4, the compartment walls are in the figures. Regarding Claims 6 and 7, See FIG 3. Regarding Claim 8, the walls are adjustable (page 4, lines 65 to 70).

Regarding Claim 9, mixers are shown in the figures (see also page 3). Regarding Claim 10, the flow is counter current. Regarding Claim 15, it would have been obvious to one of ordinary skill in the art at the time the invention was made to expect that the ends of the compartment walls would be near the layer of metal since the liquid travels over the compartments as shown in the figures. Regarding Claim 16, the figures show the walls paired together.

Allowable Subject Matter

Claims 2, 5, 11, 12, 17 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 19 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

The following is a statement of reasons for the indication of allowable subject matter: regarding claims 2, 17, GB '503 does not disclose or suggest changing the temperature during the process as claimed. Regarding Claims 5 and 19, GB '503 specifically teaches away from forming a separate layer (page 1, line 46). Regarding Claims 11, 12 and 18, GB '503 does not disclose or suggest refining aluminum.

Conclusion

The office action for application 10/516,889 was cited in the information disclosure statement filed on 14 July 2008. This application shares inventors with those of the present application. US '889, now allowed, does not claim a chamber with a lower wall and an upper wall divided into a series of compartments or forming crystals in the compartments.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TIMA M. MCGUTHRY-BANKS whose telephone number is (571)272-2744. The examiner can normally be reached on M-F 7:00 am - 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Roy King/
Supervisory Patent Examiner, Art Unit
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/T. M. M./

Examiner, Art Unit 1793

4 September 2008